

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claims 1-2 (canceled).

Claim 3 (currently amended): A fuel cell system comprising:
a fuel cell stack which is supplied with a fuel aqueous solution and generates electric energy by electro-chemical reaction;
a concentration detector arranged to detect a concentration of the fuel aqueous solution to be supplied to the fuel cell stack;
a temperature detector arranged to detect a temperature of the fuel cell stack;
a central processing unit programmed to control the fuel cell system;
a memory arranged to store data including first correspondence data which indicates a correspondence between the temperature of the fuel cell stack and a target concentration of the fuel aqueous solution;
the central processing unit and the memory together defining an input amount determining device arranged programmed to determine an amount of fuel to be inputted to the fuel aqueous solution based on the concentration of the fuel aqueous solution detected by the concentration detector and the temperature of the fuel cell stack detected by the temperature detector; and
an input device arranged to input the determined amount of the fuel to the fuel aqueous solution; wherein
the input amount determining device~~central processing unit~~ further includes:
~~a memory arranged to store data which indicates a correspondence between the temperature of the cell stack and a target concentration of the fuel aqueous solution;~~

a target concentration determining device arranged-programmed to determine a target concentration of the fuel aqueous solution by making reference to the first correspondence data in the memory and based on the temperature of the fuel cell stack detected by the temperature detector; and

an input fuel amount determining device arranged-programmed to determine an amount of fuel to be input based on the concentration of the fuel aqueous solution detected by the concentration detector and the target concentration determined by the target concentration determining device; and

the fuel-cell system further comprises:

a target temperature raise time setting device arranged-programmed to set a target temperature raise time which indicates a time that is necessary for increasing the fuel cell stack to a predetermined temperature; wherein

the data in the memory further includes second correspondence data which indicates a correspondence between the temperature of the fuel cell stack, the target temperature raise time, and the target concentration; and

the target concentration determining device determines the target concentration of the fuel aqueous solution by making reference to the second correspondence data and based on the temperature of the fuel cell stack detected by the temperature detector and the target temperature raise time set by the target temperature raise time setting device.

Claim 4 (currently amended): A fuel cell system comprising:

a fuel cell stack which is supplied with a fuel aqueous solution and generates electric energy by electro-chemical reaction;

a concentration detector arranged to detect a concentration of the fuel aqueous solution to be supplied to the fuel cell stack;

a temperature detector arranged to detect a temperature of the fuel cell stack; a central processing unit programmed to control the fuel cell system;

July 15, 2010

Reply to the Office Action dated April 15, 2010

Page 4 of 18

a memory arranged to store data including first correspondence data which indicates a correspondence between the temperature of the fuel cell stack and a target concentration of the fuel aqueous solution;

the central processing unit and the memory together defining an input amount determining device arranged-programmed to determine an amount of fuel to be inputted to the fuel aqueous solution based on the concentration of the fuel aqueous solution detected by the concentration detector and the temperature of the fuel cell stack detected by the temperature detector; and

an input device arranged to input the determined amount of the fuel to the fuel aqueous solution; and

a secondary battery electrically connected with the fuel cell stack, and an electric-charge detector arranged to detect an amount of electric charge in the secondary battery; wherein

the input amount determining device central processing unit further includes:

a memory arranged to store data which indicates a correspondence between the temperature of the cell stack and a target concentration of the fuel aqueous solution;

a target concentration determining device arranged-programmed to determine a target concentration of the fuel aqueous solution by making reference to the first correspondence data in the memory and based on the temperature of the fuel cell stack detected by the temperature detector; and

an input fuel amount determining device arranged-programmed to determine an amount of fuel to be input based on the concentration of the fuel aqueous solution detected by the concentration detector and the target concentration determined by the target concentration determining device; wherein

the fuel-cell system further comprises:

a secondary battery electrically connected with the fuel cell stack, and an electric-charge detector arranged to detect an amount of electric charge in the secondary battery; wherein

July 15, 2010

Reply to the Office Action dated April 15, 2010

Page 5 of 18

the data in the memory includes second correspondence data which indicates a correspondence between the temperature of the fuel cell stack, the amount of electric charge in the secondary battery, and the target concentration; and

the target concentration determining device determines the target concentration of the fuel aqueous solution by making reference to the second correspondence data and based on the temperature of the fuel cell stack detected by the temperature detector and the amount of electric charge in the secondary battery detected by the electric-charge detector.

Claim 5 (previously presented): The fuel cell system according to Claim 3, further comprising an ambient temperature detector arranged to detect an ambient temperature, wherein the input amount determining device corrects the determined amount of input of the fuel based on a difference between the temperature of the fuel cell stack and the ambient temperature.

Claim 6 (previously presented): The fuel cell system according to Claim 3 , wherein the memory stores historical information about the concentration of the fuel aqueous solution, the concentration of the fuel aqueous solution being obtained from the historical information upon failure in detecting the concentration of the fuel aqueous solution by the concentration detector.

Claim 7 (original): The fuel cell system according to Claim 6, wherein the historical information includes power generation data which indicates whether or not power generation was successful in the previous system startup, final concentration data which indicates a final concentration of the fuel aqueous solution detected by the concentration detector, and time data which indicates the time when the final concentration was detected by the concentration detector,

the concentration of the fuel aqueous solution being provided by the final concentration indicated by the final concentration data upon determination, based on

July 15, 2010

Reply to the Office Action dated April 15, 2010

Page 6 of 18

the power generation data, that power generation was successful in the previous system startup, and determination, based on the time data, that a first predetermined time has not been lapsed since the detection of the final concentration.

Claim 8 (original): The fuel cell system according to Claim 7, wherein the historical information further includes input information of the fuel, the amount of input of the fuel being determined based on the input information upon determination, based on the power generation data, that power generation was not successful in the previous system startup or determination, based on the time data, that the first predetermined time has been lapsed since the detection of the final concentration.

Claim 9 (original): The fuel cell system according to Claim 8, wherein the amount of input of the fuel is provided by the predetermined amount upon determination, based on the input information, that a second predetermined time has passed since the previous input of the fuel, the amount of input of the fuel is zero upon determination, based on the input information, that the second predetermined time has not passed since the previous input of the fuel.

Claims 10-18 (canceled).

Claim 19 (previously presented): A transport equipment utilizing the fuel cell system according to Claim 3.

Claims 20-26 (canceled).

Claim 27 (previously presented): The fuel cell system according to Claim 4, further comprising an ambient temperature detector arranged to detect an ambient temperature, wherein the input amount determining device corrects the determined

July 15, 2010

Reply to the Office Action dated April 15, 2010

Page 7 of 18

amount of input of the fuel based on a difference between the temperature of the fuel cell stack and the ambient temperature.

Claim 28 (previously presented): The fuel cell system according to Claim 4, wherein the memory stores historical information about the concentration of the fuel aqueous solution, the concentration of the fuel aqueous solution being obtained from the historical information upon failure in detecting the concentration of the fuel aqueous solution by the concentration detector.

Claim 29 (previously presented): The fuel cell system according to Claim 28, wherein the historical information includes power generation data which indicates whether or not power generation was successful in the previous system startup, final concentration data which indicates a final concentration of the fuel aqueous solution detected by the concentration detector, and time data which indicates the time when the final concentration was detected by the concentration detector,

the concentration of the fuel aqueous solution being provided by the final concentration indicated by the final concentration data upon determination, based on the power generation data, that power generation was successful in the previous system startup, and determination, based on the time data, that a first predetermined time has not been lapsed since the detection of the final concentration.

Claim 30 (previously presented): The fuel cell system according to Claim 29, wherein the historical information further includes input information of the fuel, the amount of input of the fuel being determined based on the input information upon determination, based on the power generation data, that power generation was not successful in the previous system startup or determination, based on the time data, that the first predetermined time has been lapsed since the detection of the final concentration.

July 15, 2010

Reply to the Office Action dated April 15, 2010

Page 8 of 18

Claim 31 (previously presented): The fuel cell system according to Claim 30, wherein the amount of input of the fuel is provided by the predetermined amount upon determination, based on the input information, that a second predetermined time has passed since the previous input of the fuel, the amount of input of the fuel is zero upon determination, based on the input information, that the second predetermined time has not passed since the previous input of the fuel.

Claim 32 (previously presented): A transport equipment utilizing the fuel cell system according to Claim 4.